

S. McKenzie Skiles, PhD
Caltech Postdoctoral Scholar
NASA Jet Propulsion Laboratory
Phone: 626.807.9096
Email: skiles@jpl.nasa.gov

Education

- 2014 Ph.D., *Geography*, University of California- Los Angeles
- 2010 M.S., *Geography*, University of Utah
- 2008 B.S., *Geography*, University of Utah
- 2008 B.S., *Environmental Studies*, University of Utah
- 2008 GIS Certificate, University of Utah

Research Interest

Radiative forcing by light absorbing particles in snow and ice, snow and aerosol optical properties, remote sensing of the cryosphere, mountain hydrology, cryosphere-climate interaction

Publications

Thesis/Dissertation

- 2010 Interannual Variability in Radiative Forcing by Desert Dust in Snowcover in the Colorado River Basin. *University of Utah*. Advisor: Dr. Thomas Painter.
- 2014 Dust and Black Carbon Radiative Forcing Controls on Snowmelt in the Colorado River Basin. *University of California- Los Angeles*. Advisor: Dr. Gregory Okin.

Peer Reviewed Articles

- 2012 Painter, T.H., **S.M. Skiles**, J. Deems, C. C. Landry, Dust Radiative Forcing in snow of the Upper Colorado River Basin: Part I. A 6 year record of energy balance, radiation, and dust concentrations. *Water Resources Research*. 48, doi:10.1029/2012WR011985.
- 2012 **Skiles, S.M.**, T. H. Painter, J. Deems, C. C. Landry. Dust Radiative Forcing in snow of the Upper Colorado River Basin: Part II. Interannual variability in radiative forcing and snowmelt rates. *Water Resources Research*. 48, doi:10.1029/2012WR011986.
- 2013 Painter, T. H., A. C. Bryant, **S.M. Skiles**. Radiative Forcing by light absorbing impurities in snow from MODIS surface reflectance data, *Geophysical Research Letters*, 39, doi:10.1029/2012GL052457.
- 2013 Painter, T. H., F. Seidel, A.C. Bryant, **S.M. Skiles**, K. Rittger. Imaging Spectroscopy of albedo and radiative forcing by light-absorbing impurities in mountain snow, *Journal of Geophysical Research: Atmospheres*, 118(17), doi: 10.1002/jgrd.50520.
- 2013 Reynolds, R.L., H. L. Goldstein, B. M. Moskowitz, **S. M. Skiles**, R.F. Kokaly, C.B. Flagg, K. Yauk, T. Berquó, G. Breit, M. Ketterer, D. Fernandez, M.E. Miller, T.H. Painter. Composition of dust deposited to snow cover in the Wasatch Range (Utah, USA): Controls on radiative properties and snow cover and comparison to some dust source sediments, *Aeolian Research*, doi: 10.1016/j.aeolia.2013.08.001.
- 2013 Li, J., G.S. Okin, **S.M. Skiles**, T.H. Painter. Relating variation of dust on snow to bare soil dynamics in the western United States, *Environmental Research Letters*, 8(4), doi: 10.1088/1748-9326/8/4/044054.

- 2014 Kaspari, S., T.H. Painter, M. Gysel, **S.M. Skiles**, M. Schwikowski. Seasonal and elevational variations of black carbon and dust in snow and ice in the Solu-Khumbu, Nepal and estimated radiative forcings, *Atmospheric Chemistry and Physics*, doi:10.5194/acpd-13-33491-2013.
- 2014 Oaida, C., Y. Xue, M. Flanner, **S.M. Skiles**, F. De Sales, T.H. Painter. Investigating Physical Snow Processes Including Aerosols Using An Enhanced WRF/SSiB Model. *Journal of Geophysical Research – Atmospheres*, doi: 10.1002/2014JD022444.
- 2014 Kaspari, S., **S.M. Skiles**, I. Delaney, D. Dixon, T.H. Painter. Accelerated Glacier Melt on Snow Dome, Mt. Olympus, Washington, USA due to Deposition of Black Carbon and Mineral Dust from Wildfire. *Journal of Geophysical Research- Atmospheres*, doi: 10.1002/2014JD022676.
- 2015 **Skiles, S.M.**, T.H. Painter, J. Belnap, L. Holland, R.L. Reynolds, H.L. Goldstein, J. Lin. Regional variability in dust-on-snow processes and impacts in the Upper Colorado River Basin. *Hydrologic Processes*, doi:10.1002/hyp.10569.
- 2015 **Skiles, S.M.**, T.H. Painter. A 9-yr record of dust-on-snow in the Colorado River Basin, *Proceedings of the 12th Biennial Conference of Science and Management on the Colorado Plateau*.

Articles In Review

- 2015 Miller, S., F. Wang, A. Burgess, **S.M. Skiles**, T.H. Painter, M. Rogers. Satellite-Based Estimation of Temporally Resolved Dust Radiative Forcing in Snow Cover, submitted to *Journal of Hydrometeorology*.
- 2015 Painter, T.H., **S.M. Skiles**, and others. The Airborne Snow Observatory: scanning lidar and imaging spectrometer fusion for mapping snow water equivalent and snow albedo, submitted to *Remote Sensing of the Environment*.
- 2015 Seidel, F., K. Rittger, **S.M. Skiles**, T.H. Painter. Case study of spatial and temporal variability of snow cover, grain size, albedo and radiative forcing in the Sierra Nevada and Rocky Mountain snowpack derived from imaging spectroscopy, submitted to *The Cryosphere*.

Selected Conference Presentations

- 2013 **Skiles, S. M.**, *Utilizing Contact Spectroscopy to Retrieve Snow Optical Grain Size Stratigraphy*. Snow Grain Size Intercomparison Workshop. Grenoble, France, 2014. *Invited*.
- 2015 **Skiles, S. M.**, *Dust on Snow Processes and Impacts in the Upper Colorado River Basin*. American Geophysical Union Annual Conference. San Francisco, CA, 2015. *Invited*.

Selected Fieldwork Experience

- 2014 South cascade glacier ice core collection/spectroscopy, *North Cascades, WA (Sep 2014)*
- 2014 Snow grain size measurement Inter-comparison project, *Davos, Switzerland (Mar 2014)*
- 2013 Snow radiative transfer snow property data set (daily measurement of albedo, grain size, dust/BC over the ablation season), Senator Beck Basin Study Area, *San Juan Mountains, CO (Mar-May 2013)*
- 2013 Dark Snow Project snow core collection/spectroscopy, *Greenland Ice Sheet (Jul 2013)*
- 2012 Snow Dome ice core collection/spectroscopy, *Mt. Olympus, WA (Aug 2012)*

- 2012 Airborne Snow Observatory ground validation, *Yosemite National Park, CA/San Juan Mountains, CO (Summer 2012- current)*
- 2009 Colorado Dust on Snow Program (snow sampling, and spectroscopy), *Upper Colorado River Basin (Winter/Spring 2009- current)*

Awards and Recognition

- 2010 American Geophysical Union (AGU) Outstanding Student Paper Award
- 2012 Water Resources Research Editor' Choice Award, *Skiles et al.*, 2012
- 2013 UCLA Department of Geography Graduate Student Publication Award, *Skiles et al.*, 2012
- 2014 UCLA Graduate School Fieldwork Grant Award

Professional Involvement

American Geophysical Union
 Session Organizer, Dust and Black Carbon in Cryosphere
 Early Career Representative, Cryosphere Focus Group Executive Council
 AGU Student/Early Career Leadership Council
 EOS.org advisory panelist

Society of Women Geographers

Society of Women Geoscientist

Association of Women in Science

Relevant Work History

| | |
|---|----------------------|
| Caltech Postdoctoral Scholar, NASA-JPL | Mar 2015 - Current |
| Assistant Project Scientist, UCLA-JIFRESSE | Oct 2014 - Feb 2015 |
| GIS expert consult/witness, RBMN, SLC, UT | Oct 2012 - July 2015 |
| Snow Optics Laboratory Manager, NASA-JPL | Sep 2012 - Current |
| Graduate Student Researcher, UCLA-JIFRESSE | Sep 2010 - Sep 2014 |
| Graduate Research Assistant, University of Utah-Geography | Jun 2009 - Aug 2010 |
| Teaching Assistant, University of Utah-Geography | Aug 2008 - Jun 2009 |
| GIS Analyst, Utah Department of Transportation, SLC, UT | Jun 2009 - Sep 2009 |
| GIS Assistant, University of Utah-DIGIT Lab | Sep 2008 - Jan 2009 |
| GIS Assistant, Wild Utah Project, SLC, UT | Feb 2007 - Sep 2008 |